

WHAT IS CLAIMED IS

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1. An information processing apparatus which causes a predetermined service providing apparatus which provides a predetermined service, to execute processing concerning a service providing request made by a
10 terminal via a network, said information providing apparatus comprising:

a responding part which makes a response to said terminal asynchronously with respect to a completion of the processing which is caused to be
15 executed by said service providing apparatus;

a processing state obtaining part which obtains a state of the processing concerning the service providing request, from said service providing part; and

a Web page generating part which, in response
20 to a Web page display request made by said terminal, generates a Web page to display the state of processing which is obtained via said processing state obtaining part, and transmits the thus-produced Web page to said terminal.

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2. The information processing apparatus as
claimed in claim 1, further comprising a processing
information managing part which manages identification
information of the processing concerning the service
5 providing request,

wherein:

said responding part registers the
identification information of the processing in said
processing information managing part, and

10 said processing state obtaining part obtains
the state of the processing for which the identification
information is registered in said processing information
managing part.

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3. The information processing apparatus as
claimed in claim 1, wherein:

20 said processing information managing part
further manages information concerning a position of the
service providing apparatus which is caused to execute
the processing concerning the service providing request,
and information concerning a method for obtaining the
25 state of the processing.

4. The information processing apparatus as claimed in claim 3, wherein:

said processing state obtaining part obtains the processing state from the service providing apparatus based on the information managed by said processing information managing part in response to a Web page display request made from said terminal.

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5. The information processing apparatus as claimed in claim 1, wherein:

said responding part causes the service providing apparatus to execute the processing by transmitting a request for execution of processing concerning the service providing request, to the service providing apparatus.

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6. The information processing apparatus as claimed in claim 5, wherein:

said responding part obtains information

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concerning a method for obtaining the processing state of the processing from the service providing apparatus as a response to the request for execution of the processing concerning the service providing request; and

5 said processing state obtaining part obtains the processing state based on the information concerning the method for obtaining the processing state obtained via the responding part.

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7. The information processing apparatus as claimed in claim 6, wherein:

15 in case a plurality of methods for obtaining the processing state obtained by the responding part are managed in the processing information managing part, said processing state obtaining part obtains the plurality of processing states based on the respective
20 ones of the plurality of methods for obtaining the processing state.

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8. The information processing apparatus as claimed in claim 5, wherein:

said processing state obtaining part transmits a processing state sending request to a processing state providing apparatus which provides the processing state of processing which the service providing apparatus is caused to execute, and receives the processing state which is sent by the processing state providing apparatus in response to the processing state sending request.

9. The information processing apparatus as claimed in claim 5, further comprising a processing state receiving part receiving the processing state from the service providing apparatus,

wherein said Web page generating part generates a Web page displaying the processing state received via the processing state receiving part.

10. The information processing apparatus as claimed in claim 6, wherein:

said processing state obtaining part transmits a processing state sending request to the service providing apparatus, and receives the processing state sent from the service providing apparatus in response to the sending request.

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11. The information processing apparatus as claimed in claim 6, wherein:

the information concerning the method for obtaining the processing state comprises information concerning a position of a processing state providing apparatus which provides the processing state; and

said processing state obtaining part transmits a processing state sending request to the processing state providing apparatus specified by the position information, and receives the processing state sent by said processing state providing apparatus in response to the sending request.

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12. The information processing apparatus as claimed in claim 1, wherein:

said responding part causes the service providing apparatus to execute a plurality of processing units based on a single service providing request made by the terminal, provides a response to said terminal without waiting for respective completions of the plurality of processing units;

said processing state obtaining part obtains the respective processing states of the plurality of processing units; and

said Web page generating part generates a Web page displaying the states of the plurality of processing units obtained via said processing state obtaining part.

13. The information processing apparatus as claimed in claim 12, wherein:

said processing information managing part manages information concerning the position of the service providing apparatus which is caused to execute each of the plurality of processing units, the

information concerning the method for obtaining the processing state for each of the plurality of processing units, and also, request identification information assigning a common value for the plurality of processing
5 units to be executed based on the common service providing request made by the terminal.

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14. The information processing apparatus as claimed in claim 13, wherein:

said processing state obtaining part identifies processing based on the common service
15 providing request made by the terminal based on the above-mentioned request identification information, and, thus, obtains the respective processing states of the plurality of processing units based on the common service providing request based on the information
20 managed by said processing information managing part.

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15. The information processing apparatus as

claimed in claim 12, wherein:

said responding part causes a plurality of
respective service providing apparatuses to execute the
respective ones of the plurality of processing units.

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16. The information processing apparatus as
10 claimed in claim 12, wherein:

said Web page generating part generates the
Web page displaying in an integration manner the
respective processing states of the processing units
based on the common service providing request obtained
15 via the processing obtaining part.

20 17. The information processing apparatus as
claimed in claim 1, wherein:

said Web page generating part generates a Web
page in which the processing state is not displayed
according to a request of the terminal.

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18. information processing apparatus as
claimed in claim 1, further comprising a detailed
information page generating part which generates a Web
page displaying detailed information of the processing
5 state in response to a request made by the terminal.

10 19. The information processing apparatus as
claimed in claim 1, wherein:

said Web page generating part obtains
predetermined information from a plurality of service
providing apparatuses based on a request made by the
15 terminal, and generates the Web page displaying the
obtained information in respective ones of a plurality
of divisional areas of the page.

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20. The information processing apparatus as
claimed in claim 19, further comprising a page
information managing part which manages a structure
25 defining display contents with eXtensible Markup

Language for respective ones of the plurality of
divisional areas of the Web page for each user,
wherein said Web page generating part
generates the Web page based on the structure.

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21. The information processing apparatus as
10 claimed in claim 20, wherein:

said Web page generating part generates the
Web page in a manner such that the processing state of
the processing concerning the service providing request
is displayed in one of the plurality of divisional areas.

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22. An information processing method for an
20 information processing apparatus which causes a
predetermined service providing apparatus which provides
a predetermined service, to executes processing
concerning a service providing request made by a
terminal via a network, said information providing
25 method comprising:

a responding step of making a response to said terminal asynchronously with respect to a completion of the processing which is caused to be executed by said service providing apparatus;

5 a processing state obtaining step of obtaining a state of the processing concerning the service providing request, from said service providing part; and

 a Web page generating step of, in response to a Web page display request made by said terminal,
10 generating a Web page to display the state of processing which is obtained in said processing state obtaining step, and transmitting the thus-produced Web page to said terminal.

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23. The information processing method as claimed in claim 22,

20 wherein:

 said responding step comprises a step of registering identification information of the processing in a processing information managing part managing identification information of the processing concerning
25 the service providing request, and

said processing state obtaining step comprises
a step of obtaining the state of the processing for
which the identification information is registered in
said processing information managing part.

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24. The information processing method as
10 claimed in claim 23, wherein:

said processing information managing part
further manages information concerning a position of the
service providing apparatus which is caused to execute
the processing concerning the service providing request,
15 and information concerning a method for obtaining the
state of the processing.

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25. The information processing method as
claimed in claim 24, wherein:

said processing state obtaining step comprises
a step of obtaining the processing state from the
25 service providing apparatus based on the information

managed by said processing information managing part in response to the Web page display request made from said terminal.

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26. The information processing method as claimed in claim 22, wherein:

10 said responding step comprises a step of causing the service providing apparatus to execute the processing, by transmitting a request for execution of processing concerning the service providing request, to the service providing apparatus.

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27. The information processing method as claimed in claim 26, wherein:

20 said responding step comprises a step of obtaining information concerning a method for obtaining the processing state of the processing from the service providing apparatus as a response to the request for
25 execution of processing concerning the service providing

request; and

said processing state obtaining step comprises
a step of obtaining the processing state based on the
information concerning the method for obtaining the
5 processing state obtained in the responding step.

10 28. The information processing method as
claimed in claim 27, wherein:

said processing state obtaining step comprises
a step of, in case a plurality of methods for obtaining
the processing state obtained in the responding step are
15 managed by the processing information managing part,
obtaining the plurality of processing states based on
the respective ones of the plurality of methods for
obtaining the processing state.

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29. The information processing method as
claimed in claim 26, wherein:

25 said processing state obtaining step comprises

a step of transmitting a processing state sending
request to a processing state providing apparatus which
provides the processing state of processing which the
service providing apparatus is caused to execute, and
5 receiving the processing state which is sent by the
processing state providing apparatus in response to the
processing state sending request.

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30. The information processing method as
claimed in claim 26, further comprising a processing
state receiving step of receiving the processing state
15 from the service providing apparatus,
wherein said Web page generating step
comprises a step of generating a Web page displaying the
processing state received in the processing state
receiving step.

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31. The information processing method as
25 claimed in claim 27, wherein:

said processing state obtaining step comprises
a step of transmitting a processing state sending
request to the service providing apparatus, and
receiving the processing state sent from the service
5 providing apparatus in response to the sending request.

10 32. The information processing method as
claimed in claim 27, wherein:

the information concerning the method for
obtaining the processing state comprises information
concerning a position of the processing state providing
15 apparatus which provides the processing state; and

said processing state obtaining step comprises
a step of transmitting a processing state sending
request to the processing state providing apparatus
specified by the position information, and receiving the
20 processing state sent by said processing state providing
apparatus in response to the sending request.

33. The information processing method as claimed in claim 22, wherein:

said responding step comprises a step of causing the service providing apparatus to execute a plurality of processing units based on a single service providing request made by the terminal, providing a response to said terminal without waiting for respective completions of the plurality of processing units;

said processing state obtaining step comprises a step of obtaining the respective processing states of the plurality of processing units; and

said Web page generating step comprises a step of generating the Web page displaying the states of the plurality of processing units obtained in said processing state obtaining step.

34. The information processing method as claimed in claim 33, wherein:

said processing information managing part manages information concerning the position of the service providing apparatus which is caused to execute each of the plurality of processing units, the

information concerning the method for obtaining the
processing state for each of the plurality of processing
units, and also, requested identification information
assigning a common value for the plurality of processing
5 units to be executed based on the common service
providing request made by the terminal.

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35. The information processing method as
claimed in claim 34, wherein:

said processing state obtaining step comprises
a step of identifying processing based on the common
15 service providing request made by the terminal based on
the above-mentioned requested identification information,
and, thus, obtaining the respective processing states of
the plurality of processing units based on the common
service providing request based on the information
20 managed by said processing information managing part.

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36. The information processing method as

claimed in claim 33, wherein:

said responding step comprises a step of
causing a plurality of respective service providing
apparatuses to execute the respective ones of the
5 plurality of processing units.

10 37. The information processing method as
claimed in claim 33, wherein:

said Web page generating step comprises a step
of generating the Web page displaying in an integration
manner the respective processing states of the
15 processing units based on the common service providing
request obtained in the processing obtaining step.

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38. The information processing method as
claimed in claim 22, wherein:

said Web page generating step comprises a step
of generating a Web page in which the processing state
25 is not displayed according to a request of the terminal.

39. information processing method as claimed
in claim 22, further comprising a detailed information
page generating step of generating a Web page displaying
detailed information of the processing state in response
5 to a request made by the terminal.

10 40. The information processing method as
claimed in claim 22, wherein:

said Web page generating step comprises a step
of obtaining predetermined information from a plurality
of service providing apparatuses based on a request made
15 by the terminal, and generating the Web page displaying
the obtained information in respective ones of a
plurality of divisional areas of the page.

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41. The information processing method as
claimed in claim 40, further comprising a page
information managing step of managing a structure
25 defining display contents with eXtensible Markup

Language for respective ones of the plurality of
divisional areas of the Web page for each user,
wherein said Web page generating step
comprises a step of generating Web page based on the
5 structure.

10 42. The information processing method as
claimed in claim 40, wherein:
said Web page generating step comprises a step
of generating the Web page in a manner such that the
processing state of the processing concerning the
15 service providing request is displayed in one of the
plurality of divisional areas.

20 43. An information processing program causing
an information processing apparatus which causes a
predetermined service providing apparatus which provides
a predetermined service, to executes processing
25 concerning a service providing request made by a

terminal via a network, to perform:

a responding step of making a response to said terminal asynchronously with respect to a completion of the processing which is caused to be executed by said

5 service providing apparatus;

a processing state obtaining step of obtaining a state of the processing concerning the service providing request, from said service providing part; and

a Web page generating step of, in response to
10 a Web page display request made by said terminal, generating a Web page to display the state of processing which is obtained in said processing state obtaining step, and transmitting the thus-produced Web page to said terminal.

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44. The information processing program as
20 claimed in claim 43, wherein:

said responding step comprises a step of causing the service providing apparatus to execute the processing, by transmitting a request for execution of processing concerning the service providing request, to
25 the service providing apparatus.

45. A computer readable recording medium storing therein the information processing program claimed in claim 43.

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46. A computer readable recording medium storing therein the information processing program
10 claimed in claim 44.

15 47. A service providing apparatus which executes processing concerning the service providing request sent from the information processing apparatus claimed in claim 1, comprising:

a processing state obtaining information
20 sending part sending, to the information processing apparatus, processing state obtaining information which enables obtaining a completion notification and a processing state of the processing, before the completion of the processing,

25 wherein, in response to an obtaining request

made by the information processing apparatus requesting
the processing state of the processing concerning the
service providing request based on the processing state
obtaining information, the service providing apparatus
5 sends the processing state of the processing to the
information processing apparatus.

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48. The service providing apparatus as
claimed in claim 47, wherein:

the processing state obtaining information
comprises information which enables, for the information
15 processing apparatus, obtaining the processing state of
the processing which is executed by another service
providing apparatus.

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49. The service providing apparatus as
claimed in claim 47, wherein:

the processing state obtaining information
25 sending part sends the processing state obtaining

information in a form of a structure in which the processing state obtaining information is described with eXtensible Markup Language as an element thereof.

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50. The service providing apparatus as claimed in claim 49, wherein:

10 said processing state obtaining information comprises identification information for identifying the processing concerning the service providing request and information concerning a method for obtaining the processing state of the processing executed by the
15 service providing apparatus.

20 51. A service providing method for a service providing apparatus which executes processing concerning the service providing requested sent from the information processing apparatus claimed in claim 1, comprising:

25 a processing state obtaining information

sending step of sending, to the information processing apparatus, processing state obtaining information which enables obtaining a completion notification and a processing state of the processing, before the

5 completion of the processing; and

a processing state sending step of, in response to an obtaining request made by the information processing apparatus requesting the processing state of the processing concerning the service providing request
10 based on the processing state obtaining information, sending the processing state of the processing to the information processing apparatus.

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52. The service providing method as claimed in claim 51, wherein:

the processing state obtaining information
20 comprises information which enables obtaining, for the information processing apparatus, the processing state of the processing executed by another service providing apparatus.

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53. The service providing method as claimed
in claim 51, wherein:

the processing state obtaining information
sending step comprises a step of sending the processing
5 state obtaining information in a form of a structure in
which the processing state obtaining information is
described with eXtensible Markup Language as an element
thereof.

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54. The service providing method as claimed
in claim 53, wherein:

15 said structure comprises identification
information for identifying the processing concerning
the service providing request and information concerning
a method for obtaining the processing state of the
processing executed by the service providing apparatus.

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55. A service providing program for causing a
25 service providing apparatus which executes processing

concerning the service providing request made by the information processing apparatus claimed in claim 1, to perform:

- 5 a processing state obtaining information sending step of sending, to the information processing apparatus, processing state obtaining information which enables obtaining a completion notification and a processing state of the processing, before the completion of the processing; and
- 10 a processing state sending step of, in response to an obtaining request made by the information processing apparatus requesting the processing state of the processing concerning the service providing request based on the processing state obtaining information,
- 15 sending the processing state of the processing to the information processing apparatus..

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56. A computer readable recording medium storing therein the service providing program claimed in claim 55.